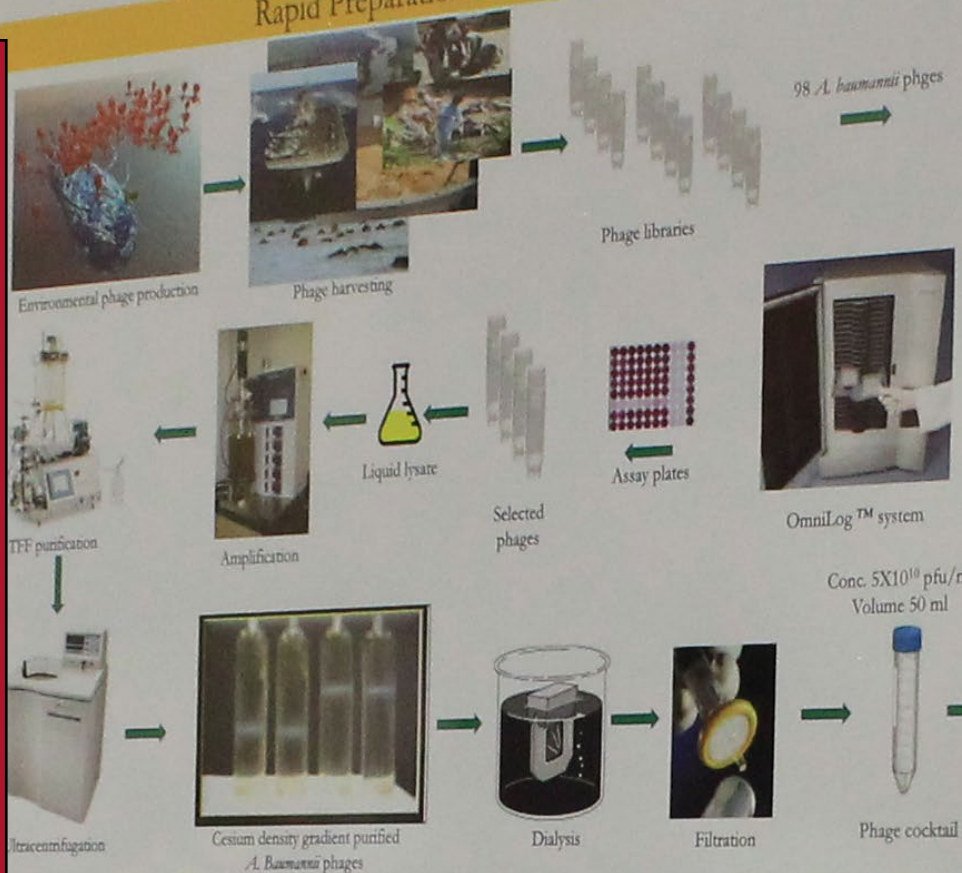




# Development of Phage Therapy to Treat

Biswajit Biswas<sup>1,2</sup>, Robert Schooley<sup>4</sup>, Matthew Henry<sup>1,2</sup>, Javier Quinones<sup>1,2</sup>, Luis Estrella<sup>1</sup>, David Wolfe<sup>1</sup>, Robert K. Topol<sup>3</sup>,  
<sup>1</sup>Naval Medical Research Center-Fredrick, MD, <sup>2</sup>Henry M. Jackson Foundation-Bethesda, MD, <sup>3</sup>Naval Medical Research Center-Silver Spring, MD, <sup>4</sup>University of California-S

## Rapid Preparation of a Personalized Phage Cocktail



NAVAL MEDICAL

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## Therapeutic Outcome of Phage Treatment



TEM of phage AB 1



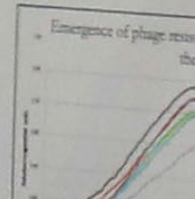
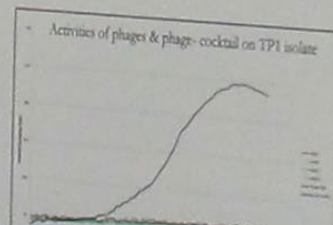
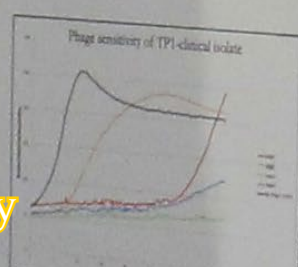
TEM of phage AB 4



SEM of phage binding TP1 isolate



SEM of no phage



Top Story: Phage Therapy





# Bacteriophage-based Therapy Overcame an A. Baumannii Infection

By Doris Ryan, Naval Medical Research Center Public Affairs Officer

SILVER SPRING, Md. – Researchers from the Naval Medical Research Center (NMRC) presented a poster in August at the Military Health System Research Symposium in Kissimmee, Florida, highlighting an alternative treatment for multidrug antibiotic resistant infections using a bacteriophage-based therapy. Dr. Biswajit Biswas, research scientist, presented information on the formulation of a bacteriophage cocktail that could be highly effective for overcoming antimicrobial resistance.

Bacteriophage, commonly called phage, are viruses that kill bacteria. Earlier this year, NMRC responded to the FDA regarding an approved Emergency Use Investigational New Drug request for a phage therapy cocktail for research purposes to support efforts at the University of California, San Diego (UCSD). Physicians there were treating a critically ill patient...

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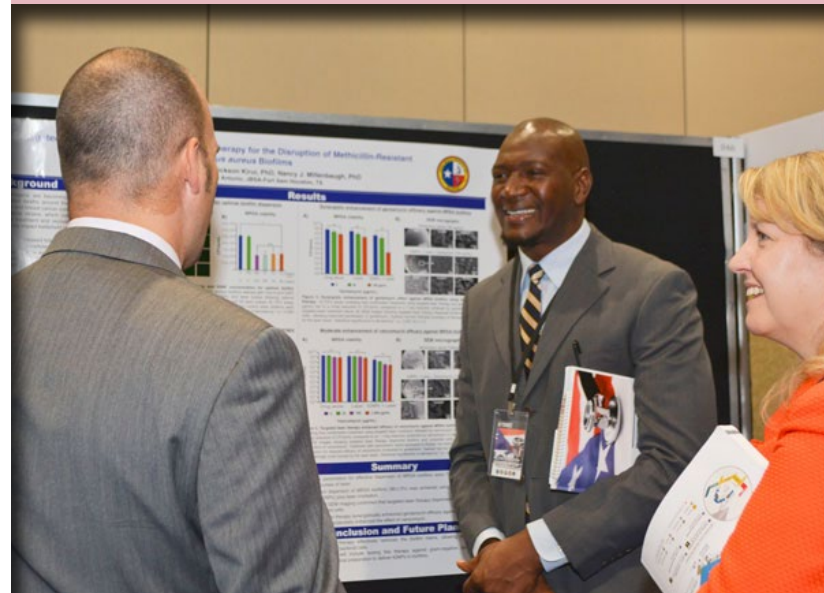


## NAMRU-SA Research Responds to the Specific Needs of Warfighters and Clinicians

Scientists, researchers, and biomedical engineers from the Naval Medical Research Unit San Antonio (NAMRU-SA) joined 2400 attendees at the 24th Annual Military Health Systems Research Symposium (MHSRS) in Kissimmee, Florida, Aug. 15-18.

NAMRU-SA researchers presented finding on the prevention of infection through a field-portable ozone sterilizer, and the use of targeted gold nanoparticle-assisted laser therapy to eradicate biofilms and improve treatment of bacterial infections...

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## R&D Chronicles: The Mosquito Fighters, Part VI

### The Philippine Occupation and the Dengue Threat

By André B. Sobocinski, Historian, BUMED

The United States emerged from the Spanish-American War a global power with new territories in Guam, Puerto Rico and The Philippines. But these new acquisitions came with a high price few outside of medical science could have anticipated—endemic tropical disease. Among the most debilitating would be a mosquito-borne illness called Dengue Fever.

Dengue had been known by American physicians as far back as the 1780s when Dr. Benjamin Rush identified cases in Philadelphia—most likely imported by a merchant brig—of what he termed “break-bone fever.” In early nineteenth century, British physicians encountering the disease in the Caribbean noted the symptomatic joint pain would cause victims to walk with a so-called “dandified gait” and labelled it “Dandy Fever.” Although the exact origin of the name Dengue remains obscure, some scholars hold the word to be a Spanish corruption of the word dandy...

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## NMRC Commanding Officer Tours Bone Marrow Research Lab

The Naval Medical Research Center (NMRC) is comprised of four research directorates: Operational and Undersea Medicine, Infectious Diseases, Biological Defense Research, and Bone Marrow Research. The latter, located off premises in Rockville, Maryland, was toured by NMRC Commanding Officer, Capt. Jacqueline Rychnovsky, Aug. 24...

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## NMRC's Lt. Watters Competes in NATO Chess Tournament

Lt. Chaselynn Watters, staff scientist in the Wound Infections Department at the Naval Medical Research Center (NMRC), and his team, took fourth place in the 27th NATO Chess Championship held in the U. K. Aug. 22-26.

Watters, an avid chess player who competed at his alma mater Texas Tech and often teaches chess enthusiasts at local libraries, competed with fellow service members from the U.S. Navy as well as the U.S. Army...

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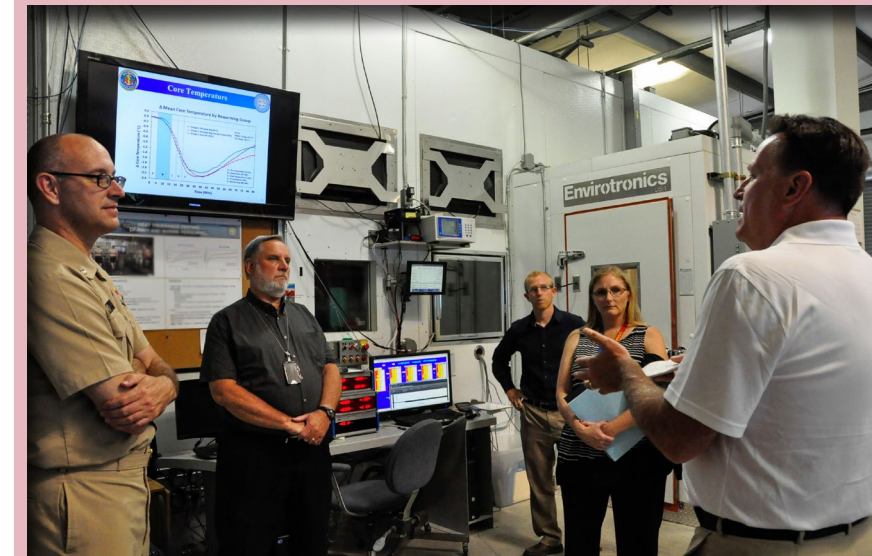


## Navy Surgeon General Emphasizes Importance of Research to Warfighter Survivability

SAN DIEGO – Vice Adm. Forrest Faison, the Navy's surgeon general and chief, Bureau of Medicine and Surgery, visited the Naval Health Research Center (NHRC) to meet with the scientists whose research helps improve warfighter health, readiness and performance, Aug. 30.

During the visit and tour, Faison discussed the need for robust research and development to deliver new capabilities in support of preventive health for service members and their families..

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## Marine Corps Science Advisors Tour NHRC's Warfighter Performance Department

Staff at the Naval Health Research Center (NHRC) provided a tour and overview of the center's research capabilities and physical assets to the science advisors from U.S. Marine Corps Forces Command (MARFORCOM), II Marine Expeditionary Force (MEF), and III MEF, Aug. 3. The science advisors are personnel from the Office of Naval Research (ONR) Global who embed within Navy, Marine Corps, and joint commands...

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## NMRC Summer Interns Present Research to Peers and Leadership

Naval Medical Research Center (NMRC) 2016 summer interns shared their research with peers and leadership during a poster session and ceremony held at NMRC Aug. 12. The internships are part of the Department of Defense Science, Technology, Engineering and Mathematics (STEM) initiative. NMRC offers two programs to students through the Office of Naval Research: the Naval Research Enterprise Internship Program (NREIP) for undergraduate and graduate students; and the Science and Engineering Apprenticeship...

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## Navy Medicine Patent Attorneys Provide Researchers Patent Process Seminar at NMRC

Patent attorneys from the Naval Medical Research Center (NMRC) Office of Legal Counsel gave the second seminar in a three-part series focusing on the process of applying for and obtaining a U.S. patent, Aug. 23...

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